

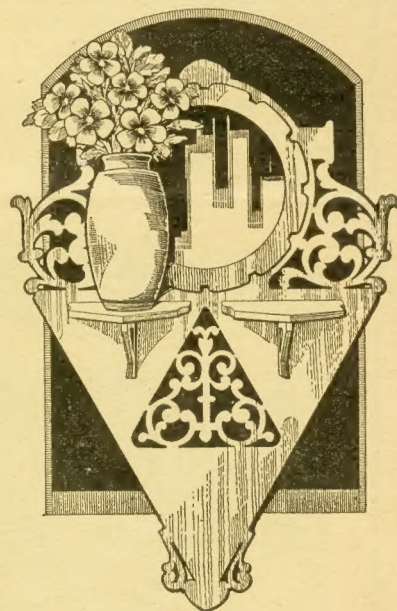
Hobbies

WEEKLY



Chemistry
Model Planes
Crossword
Models, etc.

**FREE
FRETWORK
DESIGNS
for these
INSIDE**

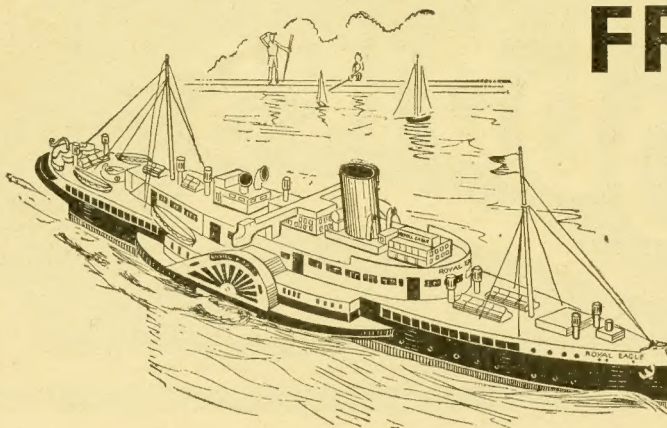


August 27th. 1938

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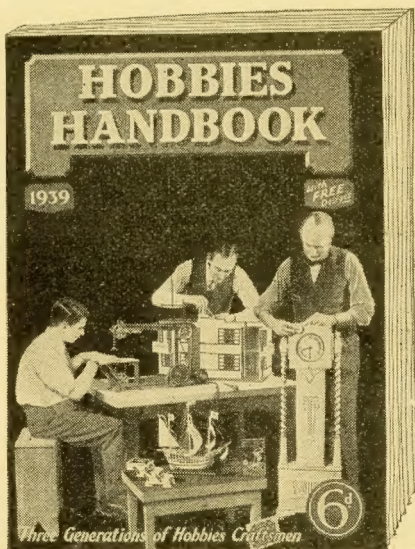
Vol. 86. No. 2236

**THE FRETWORKER'S AND
HOME CRAFTSMAN'S JOURNAL**



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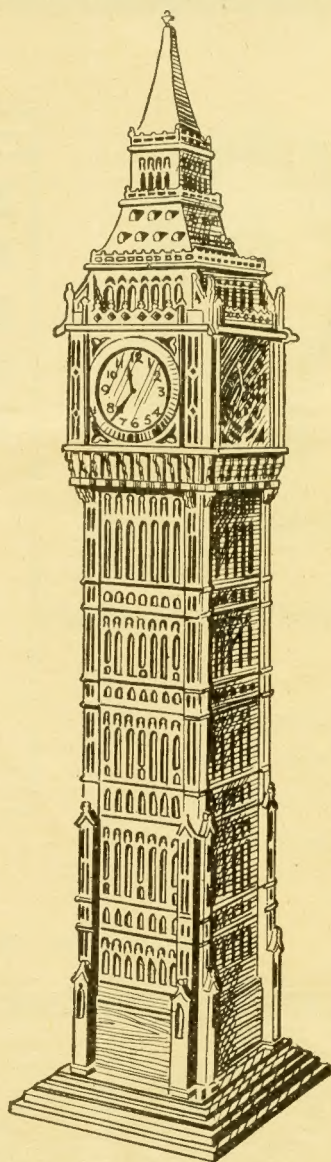
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Hobbies

WEEKLY



August 27th. 1938

Vol. 86. No. 2236

MY post bag, as you know, brings a wide range of requests, and I had one the other day which I mentioned where a couple of fellows sought companionship and help in the Hammersmith (London) district. Here is another pathetic story from a reader, and I must admit it has stumped me for the moment. That's why I ask your help on this occasion and if any brainy individual can solve the problem I do hope he will write me his views so I may pass them on if they are practical.

THE reader in question has the misfortune of being an invalid who not only has to keep to his bed but cannot sit up and must always lie on his right side. His trouble is that he wants to do fretwork very much, and that he cannot work out a suitable procedure. It is certainly a poser to know what to advise, but the fellow is so keen I know we should all like to help him if we can. So any suggestions you may have will be gratefully received, I know. And as an example to some of us lazy people, the reader tells me he has made over 60 bird tables of his own design in the last two or three years! Where there's a will, there's a way, you know!

THE number of entries in our July Photographic Competition prevents me from giving you the results this week, but I feel sure they will be through for our next issue. In the meantime some of you will have entered the contest run by Johnson & Sons which closed last month. The winners of the cash prizes were Alex. H. Hamilton of Motherwell (£3), C. M. Arnold, Dagenham, Essex (£2) and F. Woodhall, G. L. Smith, R. E. L. Blanchard and R. Cook (£1 each). There is another Competition in August for Hobbies photographers, and those who have not entered have just time to send a print along. This is the last of the Competitions this season but I shall be having various articles of

special interest to photographers right through the coming months.

WHICH reminds me of another step further—that Christmas is coming! Fancy saying that and we haven't finished holidays, I can hear you remark. Yes! I know all about that, but the same point I made just now on camping applies equally well about Xmas. And the presents we want to make! See? I know fellows who have written in some time ago to order their stock of 1939 Calendar Pads and are already cutting out to get a goodly number in hand. It's never too early you know, and you will be well advised to look into the matter now—or at least as soon as the holidays are over

IAM glad to note that a model engineering Society formed at Wigan is having a central workshop where members can congregate and act in co-operation amid wheels, lathes, turnings, gauges, micrometers and other impedimenta delightful to the heart of these people. The meeting place is in Standishgate, behind the Rendezvous Cafe, and readers will no doubt be interested in an Exhibition to be held in the Drill Hall next month.

ANOTHER Hobbies League Club is being formed in South Africa and has already commenced its activities under the enthusiasm of V. Ruthensamy, of 162 Forrest Road, Overport, Durban. Readers in the district who are members of the League or who wish to join should get in touch with our good friend there. He will explain how, when, and where members meet.

THE Gift Sheet next week has details for making a small table as a Lady's Sewing Compendium, but for those who want a smaller job there are patterns for a novel Toy Paddle Boat.

The Editor

CONTENTS

GIFT DESIGN—Mirror Vase Bracket

Hints and Tips	506
Fretwork Vase Bracket	507
A Ship in a Bottle	509
A Garden Seat	510
A Wind Turbine	511
The "Comet" Duration Model Plane	512
A Kiddies' Garden Cart	513
Hobbies Correspondence Club	514
"Dancer" Match Holder Patterns	516
Alkalies and Salts in Chemistry	519
Crossword Puzzle	520
Fretwork Notes	521
Kitchen Table and Cupboard	523
Miniature Model Chairplane	525

Correspondence should be addressed to: The Editor, Hobbies Weekly, Dereham, Norfolk, and a stamp enclosed with the Reply Coupon from Cover iii if a reply is required. Particulars of Subscription rates, Publishing, Advertising, etc. are on cover iii.

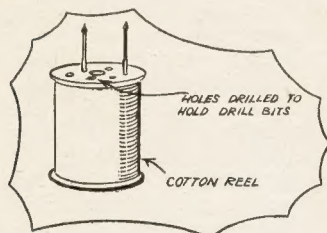
HINTS & TIPS

WORTH KNOWING

For original Tips published the sender will receive 2 dozen Fretsaw Blades. We cannot acknowledge all those received or guarantee to print them. Send to The Editor, Hobbies Weekly, Dereham, Norfolk. Keep them short and add rough pencil sketches if possible.

Drill Bit Holder

HERE is a simple device for drill bits. They are very apt to get lost or broken. Get an old cotton reel and drill a few holes in it. Then stick your bits in the



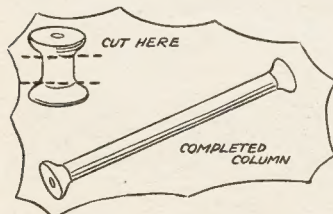
holes thus made. The reel will hold the bits and can be stood on the bench handy. The different sizes can also easily be seen this way.—(J. Paton, Doonfoot, Ayr.)

A Clean Certificate

PASTE the Hobbies' League Certificate on a thick piece of cardboard which is slightly bigger than the certificate. Over the certificate stretch a piece of cellophane and glue down on the other side. Round the edge you can put some coloured gummed cloth (this can be bought at most stationers) or fancy paper off chocolate boxes.—(P. E. Burke, St. James' End).

A Useful Pillar

WHEN making the Altar from Hobbies Design (No. 1908) I found the following hint very useful. I got a small reel and cut both ends off. Then I



got a piece of dowel 4ins. long by $\frac{1}{2}$ in. and fitted both ends of the reel into the dowel. The diagram will make it clear, and the whole thing forms a splendid pillar.—(D. Chambers, Cork).

Railway Track Noises

WHEN your express engine races down the track, there are too many track noises which can be reduced by mounting the line on rubber. Nail to the floor or board carrying the track, a strip of car inner tube. The spaces between the sleepers can be filled with sand, sprinkled on the previously glued surface.—(E. T. Alwood, Buenos Aires, S. America)

Vermin Protector

TO keep mice out of grain the following will prove to be a good tip. Take a piece of sheet iron and cut a strip out of it, about a foot broad and long



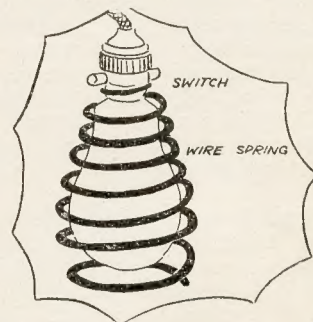
enough to go round the barrel in which you store the grain. Nail it round the barrel so as to form the same shape as illustrated.—(D. I. Stephenson, Barkly East, South Africa).

Painting Ship Models

WHILST decorating the model of the "Stirling Castle" I have made, I experienced the following useful hint. Instead of using black paint to pick out port holes, etc. on the model, the use of liquid indian drawing ink with an ordinary steel pen enabled the work to be done very neatly and quickly. Further, any mistake made could be easily remedied by rubbing the error with a rag soaked with a little petrol, thus removing the ink without impairing the enamelled white surface, and enabling the work to be carried out without having to wait until repainted.—(W. G. Pharo, Hitchin).

Workshop Lamp Guard

WHEN a portable electric light is used in the workshop or garage, it is necessary to protect the lamp bulb against fracture, by enclosing it in some



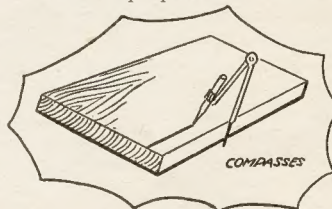
form. This can be made from an upholsterer's conical spring, similar to that employed for springing mattresses or seats. The top end is pinched in to form a circle rather smaller in diameter than the lamp-holder sleeve. It can then be sprung tightly on to the latter.—(J. Waller, Sherborne).

Softening Cycle Seat

A VERY effective method of softening, or breaking in a new cycle seat, is to roll the top of the seat hard, with a rolling pin, until leather is soft. Then rub some olive oil into the inside of the leather.—(R. Buchan, Sydney).

Marking Gauge Substitute

IF you do not possess a marking gauge, a pair of compasses used in the manner shown, will serve the purpose well for small



work, provided they are screwed up fairly tight so as to prevent slipping. Keep the leg close to the edge of the wood and resting lightly on the actual bench or table.—(No Name, Sowerby).

This week's gift design is for a VASE BRACKET

IT is now some little time since we have had a design similar to the one shown here, so we are sure it will be popular for those who are wanting to show their ability with the fretsaw. It is one of those pretty pieces of work which can be put to practical use, and which does not take too long in turning out.

It is always a mistake to commence upon a piece of work which is likely to become tiring before it has been finished. We know of readers who select a really intricate and involved article, start off with all the enthusiasm imaginable, then half way through become "fed up" with the whole thing.

It is usually very much better to start on a reasonably easy piece of work, and be sure to complete it before the edge of one's keenness is worn off.

A Variety of Work

Moreover, the article under discussion contains sufficient variety even in fretwork to keep one's interest throughout. There are not too many interior frets even for the beginner.

The large circle holding the mirror is opened up at one operation, and so makes another little change. The cutting and addition of two small fancy brackets provides a further little alteration of work which is often welcome.

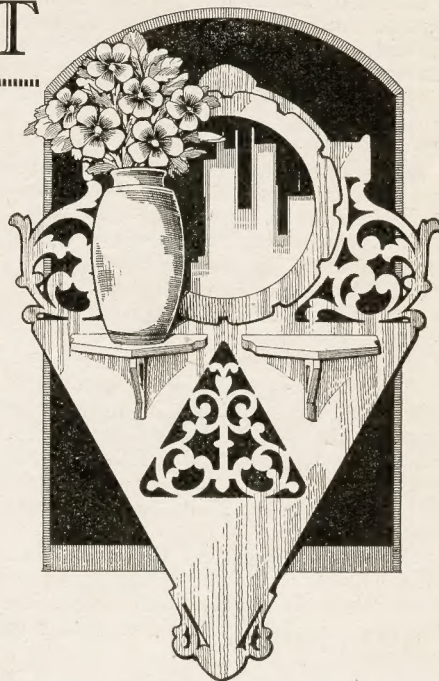
Naturally an article of this kind is going to be on view in the home, and we would recommend cutting it out in good quality fretwood. Nothing spoils a piece of work more than to see it cut, say, from very inferior plywood which gradually falls to pieces, or in which some of the plys break off during the operation of cutting.

Plywood Disadvantages

That is one of the unfortunate tendencies of cheap plywood. It may appear quite good on both surfaces—or at any rate on one—then when you come to cut it about as necessary in fretwork, some of the centre layers have come "unstuck." Odd bits fall out during the cutting, and so weaken the remaining pieces that they snap through in a very brittle manner.

Naturally you cannot expect very thin layers of ply to stand up to rough usage or even ordinary turning if they are robbed of their accompanying strips of ply to stiffen them up.

Much better, therefore, to obtain a really sound piece of fretwood even if it costs a little more. The resulting job will be much more satisfactory,



and you can hand it round for admiration with considerably more pride.

As usual, a complete parcel of materials is supplied for this design, and we would strongly recommend the worker to obtain this in order to get the best results. Details of its contents and cost are given here.

Commencing Work

The design has first to be pasted down to the wood, and in doing this, notice the way of the grain as indicated by the arrow on each pattern. Keep it upright in the long piece at the back and in the shelf supports.

In the case of the rim which holds the mirror in place, however, it is as well to glue this on with the grain running across. This will help to stiffen up the back, and overcome any tendency of warping which might otherwise occur if the two pieces of wood were glued together with the grain running in the same direction.

The Back

Whether you commence with the back, or the smaller pieces first is immaterial. A good plan, however, is to start on the back. You may not be able to complete it all at once, but if you happen to have an odd half hour or so later you can then easily sit down and cut out one of the smaller parts before returning to a solid sitting at the main back again.

Notice the inverted triangular style of the design, and keep the outline in each case true to the character. The work is of the curved interlacing style, and one of the points to notice in

MATERIAL SUPPLIED

Fretwood.—For making this design, we supply a parcel of whitewood, 1/8 post free 2/-.

Fittings.—Plain round mirror No. 5739, 7d. post free 10d.

Complete parcel wood and mirror 2/6 post paid.

completing it is the joining links between these curves.

The good craftsman in cutting these will notice that all the links are alike, and that one line of the curve fades into the other part without losing the continuity, and at the same time maintaining a balance with the other links of the similar pieces.

Link Pieces to Watch

Always watch any similar piece of pattern when you have cut one. That is, if you have finished the curve say, on the right of the design, then you should watch out that curve when you are cutting the similar one on the left-hand side.

All these links should be the length provided in the pattern, and balance each other off in the opposite side.

So far as the mirror is concerned, the large circle is cut in the back to accommodate this. Have the actual glass handy in order to lay it in place on the pattern sheet to ensure the opening marked is large enough. These mirrors in production may vary $1/16$ in. or so in diameter, and this overcomes the likelihood of creating further trouble.

It is annoying to cut the circle then find the glass will not fit into it, or that it is much smaller than the hole itself. Better, therefore, to lay the glass in place and notice that everything is satisfactory.

Backing Piece

You may be going to replace the piece of wood which came out of this circle behind the mirror. If so, remember to make your drill hole on the cutting line so it is not too obvious afterwards.

It is a good plan, too, to run a pencil mark across the cutting line so that when you take the circle of wood away the mark will show its position when you want to replace it.

Convex Mirror Alternative

By the way, Hobbies also have a convex mirror 5 ins. in diameter, which can well be used for this design. It is a little larger than the one intended, and if you are going to use it, you will have to cut out a proportionately larger circle. This is a simple matter, however. This convex round mirror is No. 5726, 5 ins. in diameter and costs $1/6$ post free.

Two small shelves are fitted into the back by means of a plain mortise and tenon joint. You can cut the mortise in the back first, then measure this up with the actual projecting tenon on the small shelf to ensure it will fit snugly into the aperture.

Make a good Fit

If you do the work the other way round by cutting a shelf first, then lay the tenon on the design of the back to see the opening for it is cut correctly. In fitting the parts together, too, clean off the paper remains on the shelf itself before fixing it into the back.

If you do not, you will get a good fit with the paper on the wood, then make the whole thing

loose by cleaning the paper off. Remember, too, to keep the glasspaper flat in cleaning up the tenon or you will make the outer edge thinner than the rest and so form a loose joint.

Shelf Support

The shelf is supported by a right angle bracket underneath. This comes into the corner provided by the underside of the shelf and the back itself. It follows therefore that these two edges of the bracket support must be dead straight in order to bed up snugly against their respective joining pieces.

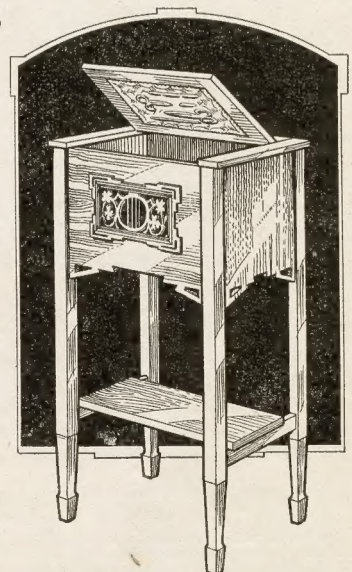
Test out each part after having cleaned it up thoroughly—finally glue in place. Put the shelf in first, applying the glue to the mortise (or slot) so that any which squeezes out will be pushed through the back. Before this glue is set, put in place the brackets underneath the shelf. The long edge of the brackets is the one which is glued to the back, and the whole thing comes centrally on to the shelf itself.

Fixing the Mirror

The completed article should have a final rubbing with glasspaper before the mirror is put in position. It is added from behind and a padding of paper or brown paper or blotting paper put at the back to fill up the space of the thickness of the wood. Then in the circle replace the piece of wood which came out, or add a circle of cardboard.

That, in turn, is held in place by a circle of brown paper being pasted over. This is a little larger than the actual wood in order to get a grip on the main back, and should be damped slightly before pasting on.

A LADY'S WORK STAND OR SEWING TABLE



Large free
design with
next week's
issue.

A novelty for patient fingers— A SHIP IN A BOTTLE

THOSE who have seen a little model ship in a bottle have often wondered how the thing was managed. Some of our readers might like to construct one of these curiosities and here is how it is done.

The choice of a bottle comes first. The neck should be wide enough to admit a model that will fairly fill the space inside, and should bulge out as shown in Fig. 1. A laboratory flask is ideal for this purpose, but any clear glass bottle resembling this will do.

You can construct almost any type of vessel, but the scale will vary according to the size of bottle. Let us take an early sailing ship for example, as these seem more popular.

Begin with a piece of white pine, balsa, or other soft wood, $\frac{1}{2}$ in. square and 3 ins. long, shape it with a sharp penknife, and smooth it off with glass-paper.

If desired, the deck may be equipped with a lifeboat, windlass, etc., but these are unnecessary. Although, of course, they add to the appearance of the finished model. The railings, scuppers, etc. are fashioned out of the thin wood from a match-box and glued to the deck, being reinforced where possible with small fretnails.

The hull is painted black with white for port-holes, and the bulwarks white or green, before being fixed in place.

Careful Rigging

We now come to the most delicate part of the work, the spars and rigging. A study of pictures of sailing ships or of the plans given in *Hobbies* of the old time boats will greatly assist in this.

The drawing at Fig. 2 shows a detail of the masts and yard arms while Fig. 3 shows a detail of the rigging. The masts are of $\frac{1}{8}$ in. dowelling,

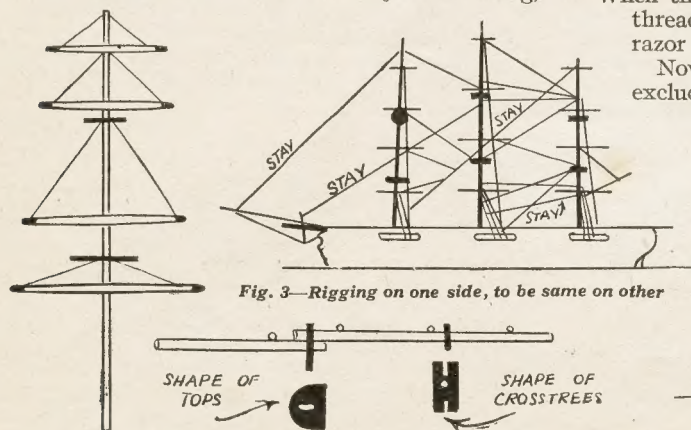


Fig. 2—Details showing how masts and spars are rigged

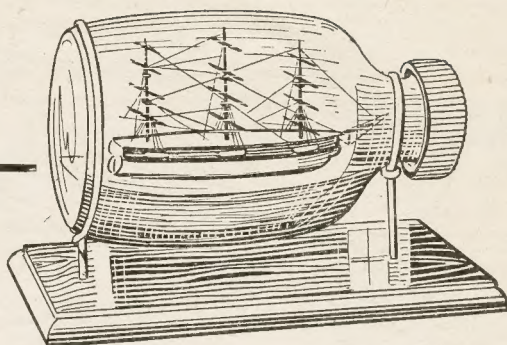


Fig. 1—Finished

as are the spars which are tapered at each end.

An ordinary darning needle, red-hot is used to drill holes in the spars and masts, to prevent splitting, or a fretwork drill may be used with great care.

The stays to support the masts are of No. 25 black linen thread, and the running rigging of No. 30 grey cotton thread. Touch any knots with glue to prevent slipping.

The masts now fully rigged are laid flat on the deck, which has holes to receive them (Fig. 4). A thread is passed from the bottom of the mast through this hole and continued through the side of the ship as shown. It will be seen that when this thread is pulled the masts slide into position and rise upright.

Finishing Touches

Make the sea of correctly coloured plaster or plastic wood, and when this has set, in the bottle, fix the model with, masts flat, on the end of some sharp instrument. Spread some glue on the bottom and push gently into the bottle.

When it is firmly stuck to the 'sea,' when the glue has set, put a drop of glue on the bottom end of your masts by means of a piece of wire, and pull them into place by the threads. This should have been left long enough to be outside the bottle, of course.

When the masts are firmly stuck, snip off the threads close to the model, by means of a razor blade on the end of a piece of wire.

Now seal up your bottle very tightly to exclude moisture, and fix on a suitable stand.

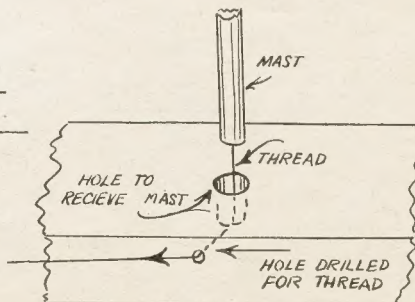
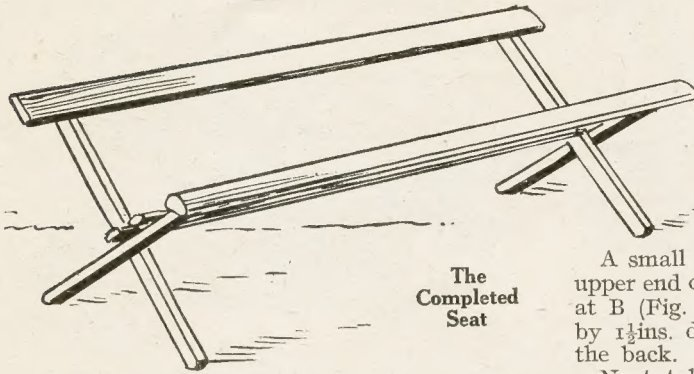


Fig. 4—How masts are put into place

It won't take long to make a GARDEN SEAT



HERE is a very serviceable garden seat which can be made quite cheaply. First of all, the material required consists simply of six pieces of wood 6ft. long, two ordinary $3\frac{1}{2}$ in. bolts and nuts, and one dozen 2in. screws. Four of these pieces of wood should be 2ins. by 3ins., and the other two, 2ins. by $1\frac{1}{2}$ ins.

Ordinary deal will do for the wood, and this is certainly not expensive. The bolts and screws are cheap enough, and a couple of pounds of paint either white or green according to fancy, will add but a shilling or two to the total cost of making a garden seat strong and serviceable and quite as comfortable as those costing much more money at the shop—apart of course, from the pleasure of having made it at home.

Few Tools Needed

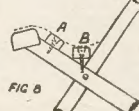
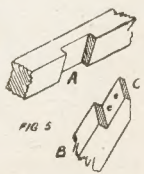
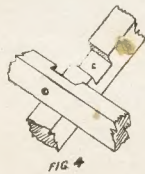
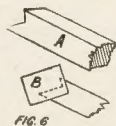
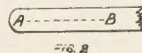
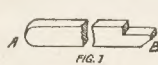
Few tools required beyond a bradawl, $\frac{1}{2}$ in. centre bit, chisel, hammer, fretsaw, smoothing plane and a spanner to tighten up the bolts with.

Commence by planing the wood smooth on all sides, and then saw two of the 2 by 3 inch lengths across midway, making four lengths of three feet. One end of each is then to be rounded off slightly, as at A (Fig. 1) on its narrow side. These four lengths crossed at a right angle form the legs and supports for the seat and also for the back rest.

Fixing Together

From the rounded end A (Fig. 2) measure off $14\frac{3}{4}$ ins. to B on two of them, and then make it $24\frac{1}{2}$ ins. between A and B on the other two lengths. At the points B, drill a $\frac{1}{2}$ in. hole right through with the centre bit, and then bolt them together in pairs at a right angle as in Fig. 3.

Draw a pencil line where they cross each other, and then unscrew them and cut a mortise in each where they



cross, $\frac{1}{2}$ in. deep, as shown in Fig. 4, and then bolt them together again firmly.

A small piece must now be cut away from the upper end of the back rest, B (Fig. 3), as is shown at B (Fig. 1). This piece should be $2\frac{1}{2}$ ins. long by $1\frac{1}{2}$ ins. deep, and the top edge slanted off at the back.

Next, take one of the 6ft. lengths of 2in. by 3in. stuff, and cut a mortise $\frac{1}{2}$ in. deep and gins. from either end to fit the tenon B (Fig. 3) as at A (Fig. 5) which is a back view.

It should be attached by a couple of screws put in from the back as shown in side view, B and all screws should be well countersunk (quite $\frac{1}{2}$ in.), and the holes then filled up level with white putty or plastic wood. The top edge can then be rounded off with the plane as at C (Fig. 5).

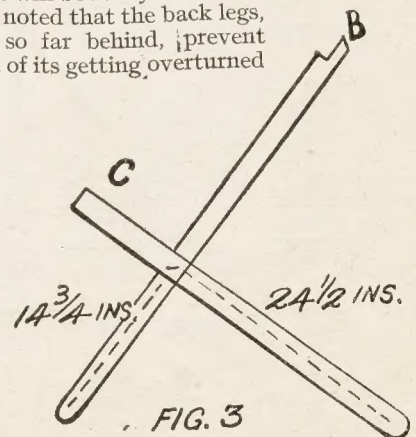
The ends C (Fig. 3), are next to be cut as shown in Fig. 6 at A, and the remaining length of 2in. by 3in. is now laid on them and pencil-marked where they cross it. A couple of $\frac{1}{2}$ in. mortises are then cut into it, so the ends A, are recessed as shown in the side view by the dotted line at B.

It is attached by two screws shown at C C (Fig. 7), and then the front edge A and top B must be planed off smooth and round.

The two lengths of $1\frac{1}{2}$ in. stuff are then screwed on at an equal distance apart, as at A B (Fig. 8), taking care to set B nearly level as shown, so the general curve of the seat is as represented by the dotted line. This can be easily obtained by the careful use of the plane, and adds very much to the comfort of the user.

It is now ready to smooth down with glasspaper, after which give it a couple of coats of paint, or stain and varnish it according to taste, and when dry the seat will be ready for use as shown.

It will be noted that the back legs, projecting so far behind, prevent any chance of its getting overturned backwards.



Try your hand at making A WIND TURBINE

A WIND turbine which will drive a lighting dynamo, a water pump for the garden pool or supply power for working large-size mechanical models, is easily made up from an old bicycle wheel.

In addition to the wheel you will require a pair of front forks and some lengths of thin sheet metal. Tin will do, but aluminium is better. Should you prefer the latter, but find it rather expensive to buy new, you can get the ideal material by stripping it from the running boards of an old car. Your local scrap-car merchant will have any amount of this kind of stuff.

Fixing the Fork

Remove the forks from the steering head and with a hacksaw cut through the tube close above the shoulder. File the cut level and smooth. Get a length of stout board about 2ft. long, 6ins. wide and at least $1\frac{1}{2}$ ins. thick and mount the forks on to one end as shown at Fig. 1.

This is best done by boring a hole through the board at the position shown. Then pass a stout bolt through the fork shoulder placing a washer under the head, through the hole in the board, another washer and finally nutting up very tightly from the underside.

Test the Running

Fit the wheel temporarily in place and test for free and true running. Should the wheel appear to "wobble" when spun in the forks, correct this by careful adjustment of the spokes until it runs fairly true.

This is important if you are to get the best results from the turbine. The wheel may now be removed and the work of fitting the blades in place taken in hand.

For a 28-inch wheel about 24 blades will be required. These are cut to the shape shown, $7\frac{1}{2}$ ins. long and tapering from 3ins. to $2\frac{1}{2}$ ins. wide at the narrow end. Cut the blades with a pair of shears and run a smooth file along the edges to take off any roughness and true them up.

Make a Template

In cutting a number of similar pieces the best way is to make a thin template of wood to the exact size and shape and use this for marking off the metal sheet. In this way all the blades will be exactly similar.

Fit a blade into position in the wheel across a pair of tangented spokes, with the wide end resting on the rim and the narrow pushed up equally between the point where the spokes cross. Make sure that the blade is equal spaces across the spokes and mark the position of both spokes, both at the top and bottom end of the blade.

Remove the blade and drill a pair of small holes about $\frac{1}{4}$ in. apart, at each marked position. Fig. 3

shows the position of the blades in the wheel, and Fig. 4 the manner in which the blades should be drilled.

Fixing the Blades

Drill the first blade accurately and use this for marking off the remainder, so all the holes are properly spaced.

The blades are secured to the spokes by passing a short piece of copper wire through one hole, round the spoke and back through the other hole, twisting the wire ends tightly together with a pair of pliers and cutting the ends neatly off.

The wheel should now be painted to protect it from the weather and any colour scheme can be employed. Paint the wheel itself a bright blue, with the blades in aluminium to make a very striking effect when the whole thing is spinning merrily in the wind.

Rigging the Model

Fit the wheel permanently back into the forks, making sure that it runs freely and quite centrally. The rigging up of the turbine in a suitable position depends to a great extent upon the particular site available.

A stout pole in the garden will answer well, or in some cases a point of the house roof may be adapted. Whatever the chosen site, the board must be secured by the centre of balance with the wheel in position. It may even be necessary to add some weight to the opposite end to balance the weight of the wheel and forks.

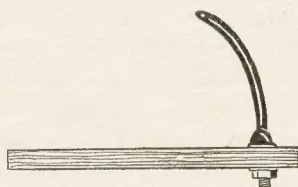


Fig. 1—The wheel fork fixed

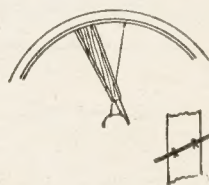


Fig. 3—The blades in the wheel

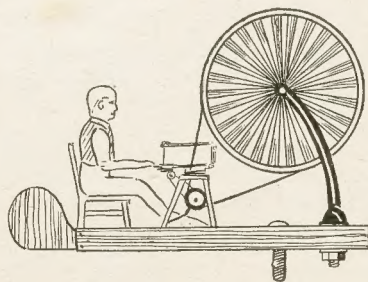


Fig. 2—Driving a working model

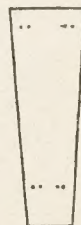


Fig. 4—A vane

If the turbine is to be used to drive a dynamo or pump it must be set to meet the prevailing wind of the locality, for it will be understood that it is awkward to make the platform revolve when the driving belt is running to a particular fixed point.

In the case of a working model, however, this may be fitted to the platform itself and the whole thing made to turn into the wind by fitting a metal vane to the end of the platform, in the manner shown.

It will be found that round leather belting is the best means of drive to model or machine. The belt passes around the rim of the turbine wheel and then to the pulley of the driven machine.

One point to be observed in building this turbine is the need for security in setting it up into position, for very great stresses are set up when the wheel is revolving at high speed in a strong wind. Unless the platform is well secured into place, therefore it will very soon vibrate itself down to the ground.

CONVERTING THE "COMET" PLANE TO DURATION MODEL

THOSE readers who have built the "Comet" model aeroplane, described in our issue of March 26th, will be interested to know how it can be converted to a duration model good enough to compete with other models in its class.

The changes are very simple. The windscreen, headrest and cockpit are removed and two short pieces of $\frac{1}{8}$ in. by $1/16$ in. balsa spliced in to continue the top stringers over the gap.

The undercarriage legs are also removed, but it is not necessary to remove the wires from the fuselage.

Bamboo Legs

A pair of bamboo legs 6 ins. long are substituted in order to accommodate a larger propeller. rin. celluloid streamline wheels are used instead of balloon wheels, and the fairings are eliminated.

The wing is divided in the centre and the wire supports removed, after which the wing halves are glued together again with the tips raised 4 ins. at each side instead of 3 ins. New wire struts are made but instead of the wing being raised well

The old propeller is removed and a new propeller shaft is made as shown in the sketch. A loop is first twisted and the end is extended to engage with the propeller. A small safety pin with the ends removed is used for a spring, and after little loops have been twisted at the ends, it is slipped on to the shaft which is then pushed through the propeller.

A few washers are added and the shaft is pushed through the noseblock. The rubber hook is made to clip over itself as before, but the end is left extra long so that it will catch on a short sprig which is pushed into the back of the noseblock.

This is a well known device for increasing duration and the action is very simple. The tightly wound rubber pulls the propeller shaft back, compressing the spring, engaging the propeller and also pulling the rubber hook away from the spring and permitting it to revolve.

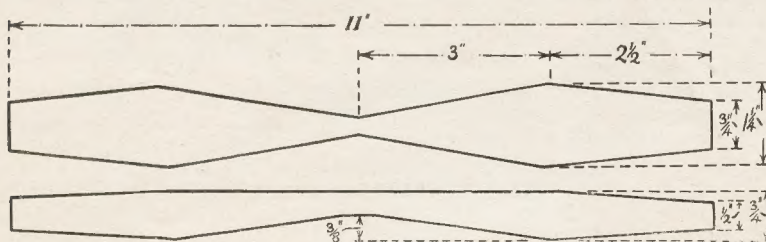
As the motor runs down, the spring pushes the shaft forward until the hook catches on the sprig keeping the rubber taut. The propeller is released and allowed to revolve freely in the wind, thus reducing the resistance.

Some 10 to 14 strands of rubber are used, and on this the model has a very powerful climb. More rubber still may be used, but there is a tendency for it to bang against the sides of the fuselage.

The rubber should be well lubricated. Cycle valve tubing over the hook prevents the wire cutting the rubber.

The model should first be tested for gliding trim and the wing pushed up and down the fuselage until the model glides well. Once the wing position has been found it should never be altered.

The climb may be adjusted by packing the noseblock with balsa, but the model should, however, be allowed to climb at as great an angle as possible without looping.



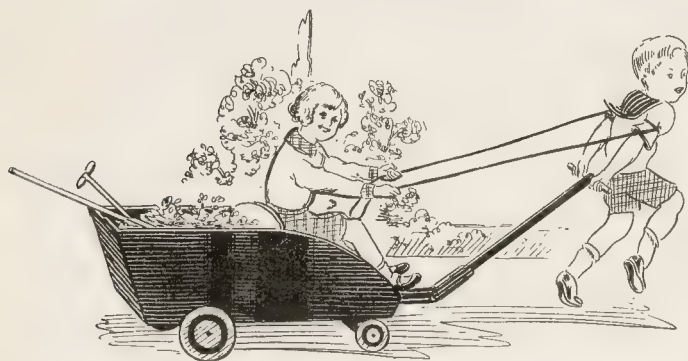
Details of the new propeller and shafting

above the fuselage, the trailing edge is allowed to rest on the top stringers while the leading edge is raised $\frac{1}{4}$ in.

A block of balsa measuring 11 ins. by $1\frac{1}{2}$ ins. by $\frac{3}{4}$ in. is cut to the shape shown. After drilling the hole for the propeller shaft it is a simple matter to carve the propeller and when finished the blades are rounded off, and the propeller is covered with superfine Japanese tissue and given a coat of dope to tighten it. It is essential that the balsa used be the hardest obtainable.

Delight some youngster with this

GARDEN CART



HERE is a little cart that will give the kiddies lots of fun. It can be used for holding the garden implements when clearing up borders, etc. and also as a pull-along trolley for running round the lawn.

The trolley itself is 30ins. long and 12ins. wide, and the handle for pulling it along can be made to any convenient length.

The front wheels are attached to a proper little turntable arrangement so as to make it simple and easy for getting round corners and bends, and there is a seat inside wide enough for the baby sister.

As the cart will be painted, it can be made from deal, and the sides being 10ins. wide, these can be in two widths from 5ins. board glued up and strengthened if necessary with small-section cross battens.

The Sides and Floor

From the dimensions given in Fig. 1, it should be a simple job to set out accurately one of the sides, the curved front part being cut with a coarse fretsaw. The second side is got by marking round the finished one and then cleaning up ready for assembly.

The floor of the cart is shown in Fig. 2, and this

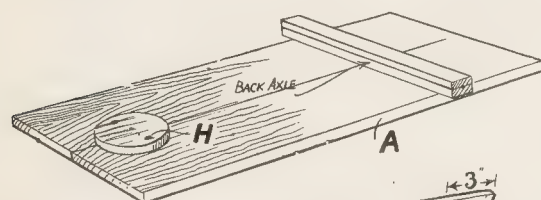


Fig. 2—Floor

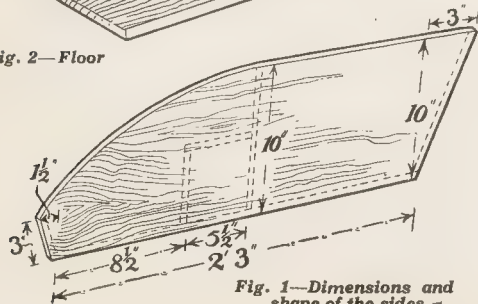


Fig. 1—Dimensions and shape of the sides

again, being 11ins. wide two pieces of stuff will be used, the back axle cross piece helping to strengthen the joint. Inside the cart, and beneath the seat perhaps, another cross batten could be also fixed.

Nail the two sides (B) to the floor and next put in the back (C) this latter being of two widths again with the top edge and the lower edge planed to an angle to fit.

The shallow front rail (G) is just a narrow 3in. board with rounded top edge and with lower edge again planed to fit the angle of the floor. The seat, consisting of pieces (D), (E) and (F) can be made up independently of the cart and fixed afterwards, the widths of 11ins. being carefully gauged for each piece of stuff.

Essential Parts

In Fig. 4 is shown the positions of the various parts of the cart and how they are fitted, the near side of course, is omitted.

The top edges of piece (D) must be well rounded and glasspapered off smoothly. The turntable, piece (H), is 4ins. in diam. and 1/2 in. thick, and this could with advantage be cut from beech wood which is better able to take the wear and tear of this moving part.

Screw the piece centrally to the underside of the floor, and 1in. back from the front edge of same as seen in Fig. 2.

There will be wanted two pieces of (H) both preferably of hard wood. The second piece is attached to the handle board (I) seen in Fig. 4 with the front axle also fixed to it.

The Axles

Both axle bars will be made from stuff 13ins. long by 2ins. wide and 1/2 in. thick, and each will have two pieces nailed firmly together as shown, the extreme ends being further strengthened by bands of hoop iron 1/2 in. wide, lapped and screwed on.

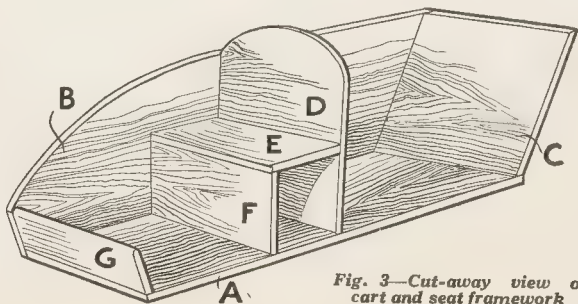


Fig. 3—Cut-away view of cart and seat framework

All the necessary measurements for marking out and cutting the handle board (I) to which is afterwards attached one of the turntable pieces, is given in Fig. 4. To this board is also fixed the pivot piece (J) which slots between the two pieces (K) on the handle.

The three pieces (J and K) are similar in outline, but (J) only has a slot which is let into (I) as indicated. The measurements for (J and K) are given in Fig. 4, as is the handle with the pieces attached.

The Handle

The handle (L) is cut from rin. by $\frac{1}{2}$ in. stuff and the suggested length for this is given as 2ft. 6ins. A piece of $\frac{1}{2}$ in. diam. dowel is firmly fixed into the top end of it to form a handle for pulling.

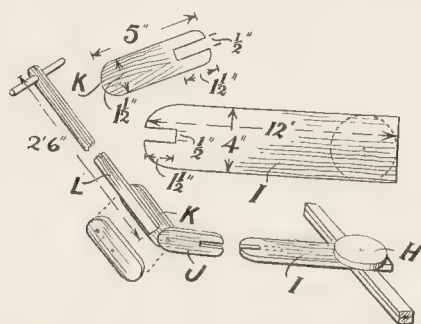


Fig. 4—Lettered parts of the framework

When the handle is not in use the bar should fold back conveniently against the seat.

It must be noted that the side pieces (K) of the handle must be strongly attached to the bar as they have to withstand a fair amount of side strain.

In this respect it would again be advisable to have the three pieces (J and K) cut from the harder wood beech.

The front axle when complete should be attached loosely to the turntable (H) on the floor by a long round headed screw such as those supplied for fixing on the wheels. A metal washer should be added between the head of the screw and piece H of the axle bar.

The Wheels

The wheels are Hobbies (No. 604) of hardwood and nicely turned and painted and polished. The large rear wheels are 5ins. diam., and the front ones 2 3/4 ins. diam.

All are put on with the special round-headed screws provided with each set. Metal washers are put between the heads of the screws and the wheels to relieve the wear.

Before painting the woodwork, the knots, if there are any, must be coated with clear varnish and the surfaces all cleaned off ready for the two coats of paint.

The sides, ends and front would look well tinted red with dark blue or chocolate for the interior.

CUTTING LIST

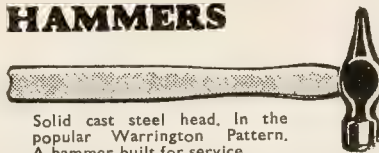
A—1 required 27ins. by 1 1/2ins. by 1/2 in.
 B—2 required 28 1/2ins. by 10ins. by 1/2 in.
 C—1 required 11ins. by 10ins. by 1/2 in.
 D—1 required 11ins. by 1 1/2ins. by 1/2 in. shaped.
 E—1 required 11ins. by 6ins. by 1/2 in.
 F—1 required 11ins. by 5ins. by 1/2 in.
 G—1 required 11ins. by 3ins. by 1/2 in.
 H—2 required 4ins. by 4ins. by 1/2 in. beech.
 Axles—4 required 13ins. by 2ins. by 1/2 in.
 I—1 required 12ins. by 4ins. by 1/2 in.
 J and K—1 required 15ins. by 2ins. by 1/2 in. beech.
 L—1 required 30ins. by 1in. by 1/2 in.
 Battens—1 required 12ins. by 6ins. by 1/2 in.
 1 pair Wheels No. 604 5ins. diam.
 1 pair Wheels No. 604 2 3/4 ins. diam.
 Complete with screws and washers.

HOBBIES LEAGUE CORRESPONDENCE CLUB

These Members of Hobbies League would like to get in touch with other readers and so form pen friendships which will undoubtedly prove interesting to all. In this way, one has a wide circle of friends and increased knowledge in people and places, not only in one's own country, but all over the world. Members should write direct to the addresses given, stating their full address and age, adding any hobbies in which they are interested. Hundreds of members have already taken advantage of this Correspondence Club in this way and others who wish to do so should notify the Registrar with the necessary particulars.

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V. Ruthensamy.	154, Sparks Rd., Sydenham, Durban, S. Africa.	Any British Colony and Island except S. Africa (14-16 yrs.) Anywhere.	Stamps, Fretwork, Cig. Cards and Electricity.
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Johnson Griffiths.	Conservative Club, High Street, Tenby, S. Wales.	Germany, India, Egypt and Spain.	Stamp Collecting.
P. Line.	37, First Avenue, Coventry, Warwicks.	Anywhere.	Anything.
R. A. Nesbit.	13, Uplands, Monkseaton, Northumberland.	Anywhere except British Isles.	Collecting wild flowers, Stamps and Curios.
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T. C. Chacko.	P.W.D. Office, Batu Pahat, Johore, Malaya.	British Crown Colonies (except Canada) and America.	Stamps.
J. Campbell.	136, Kenilworth Ave., Waverley Park, Glasgow, S.I.	S. Africa or India, age about 16 either sex.	Anything.
Sohan Lal.	119, Church Rd., Ferozepore, India.	Anywhere.	Coin Collecting.
F. Dickson.	25, Marshall St., Off Pitmore Rd., Sheffield, S.	Anywhere.	Anything. Stamp Collecting.

HAMMERS



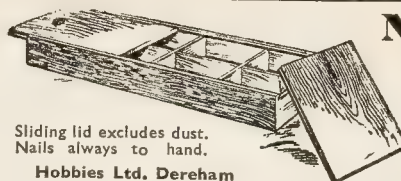
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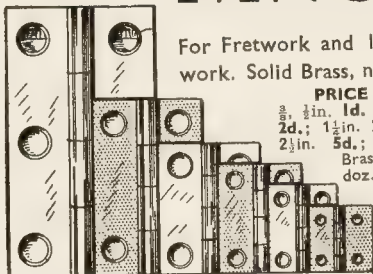


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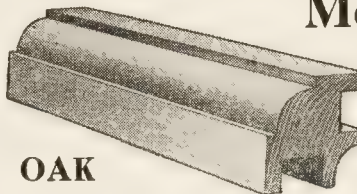
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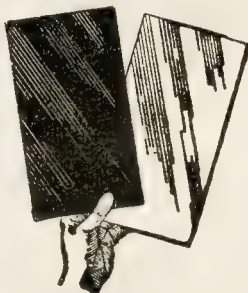
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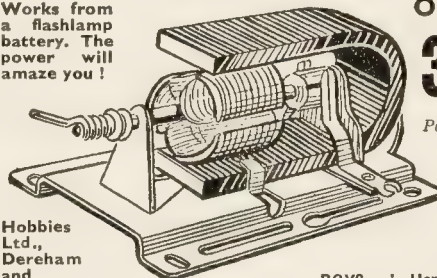
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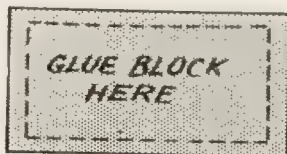
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"The Dancer" Silhouette

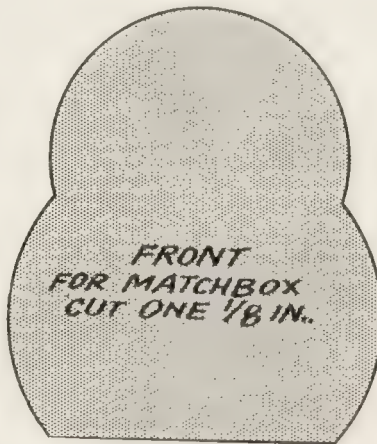
Design
S.D. 28



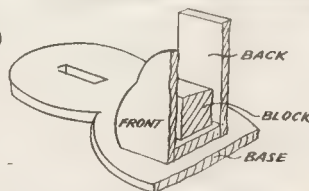
DANCER
CUT ONE $\frac{1}{8}$ IN.



BASE OF
MATCH HOLDER
CUT ONE $\frac{3}{16}$ IN.



FRONT
FOR MATCHBOX
CUT ONE $\frac{1}{8}$ IN.



HERE is a little novelty which can be easily cut out in fretwood to make an attractive piece of work. As seen from the illustration, a dancer is cut out as a silhouette figure and stood against the background of wood.

Beneath the extended leg is a little block and match holder, making the whole thing a useful and practical article for the sideboard or side table in any room.

Details of the construction are shown below, and the thickness of the wood required for the various parts is indicated on each pattern. It is best to get the figure in some different type of material to contrast with the background. Unless you are painting the figure up more realistically, then you can have the background a jet black as well.

The baseboard consists of two circles joined, and the piece marked A must be cut out to take the projecting tenon of the back. Be sure to get this a good fit, and when it is in place, the back support stands against the upright piece with the shorter side on the base itself.

The position of the matchbox holder is shown, and this must be marked off with a little pin hole before the pattern remains are cleaned away.

The corner in the back position should be

This block is a shell of a ins. wide. It is glued enough to slide over

The front should be stand. A fore being other firm

The figure the other together. I of the pr

It is be plywood ivory, metal is through

Get the on the p

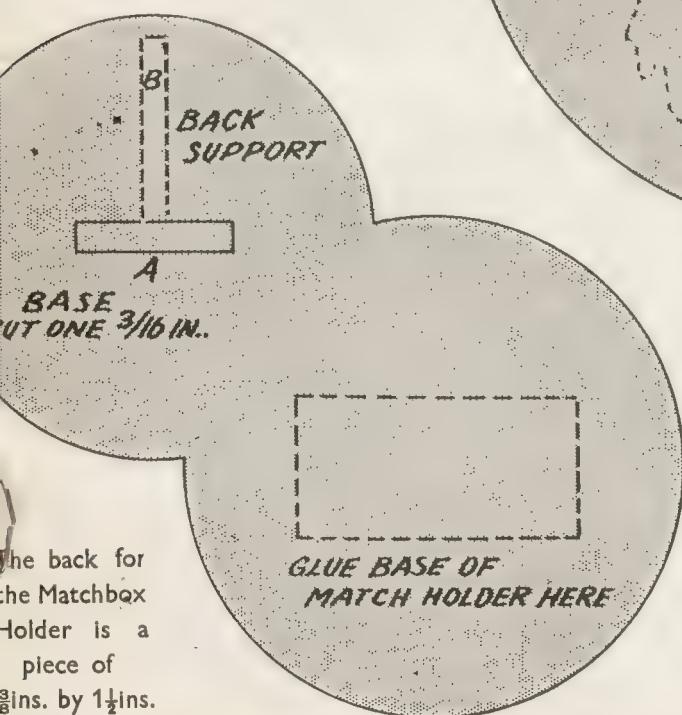
te Match Holder Design

struction of the matchbox holder is shown
k view detail. A small base is glued in the
shown, and on this is fitted a block of wood.
ock is intended to fit comfortably into the
matchbox case. It measures roughly $1\frac{1}{4}$
in. thick and 1 in. from back to front.
ed centrally on the small base just far
way from the back for the match case to

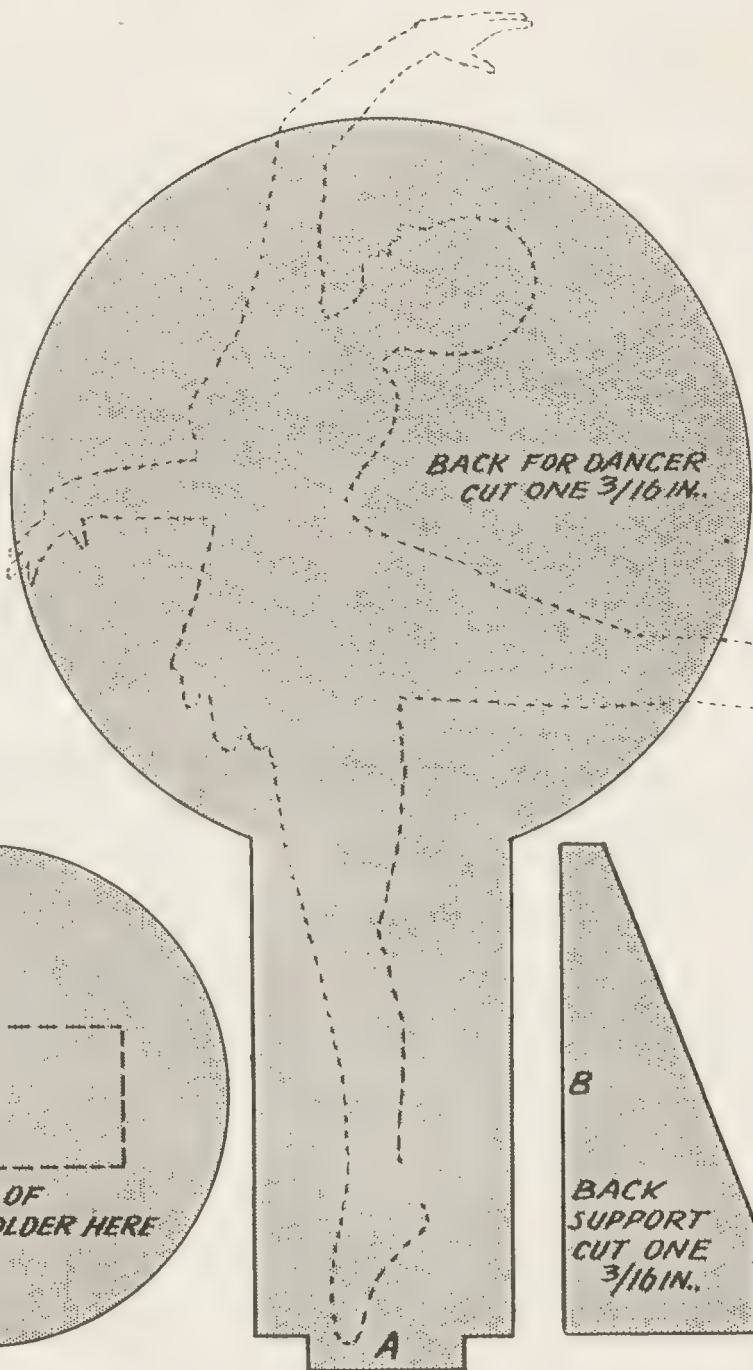
ent is glued on, and here again there
just room behind for the match case to
parts must be thoroughly cleaned up be-
g fitted together, then glued to each
ly.

ure of the dancer should be added after all
parts have been completed and put to-
f you put it on earlier there is a likelihood
projecting leg and arm becoming broken.
est, indeed, for this figure to be cut in thin
or even in some fancy material such as
rylonite, or if you can, a piece of metal. If
used, it must be screwed on or riveted
in an inconspicuous place.

the figure upright to the dotted lines shown
attern of the back.



The back for
the Matchbox
Holder is a
piece of
ins. by $1\frac{1}{2}$ ins.



PLYWOOD

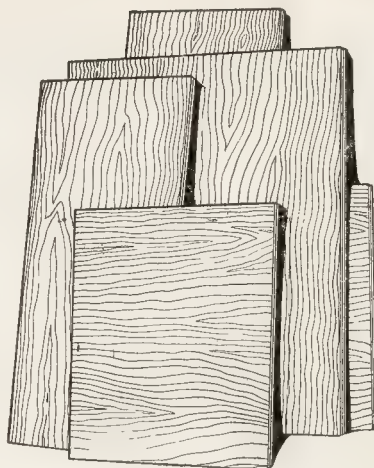
Plywood will never entirely supplant solid woods like oak, mahogany and walnut, but it is ideal for certain jobs such as panelling, jigsaw puzzles, etc. For all your plywood requirements, try Hobbies first. You get good value—and a square deal.

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$\frac{1}{4}$ in.	24 in. × 10 in. ($1\frac{3}{4}$ sq. ft.)	... "	7d.
	48 in. × 10 in. (3 sq. ft.)	... "	1/2

It is best to order these thin panels with thicker boards as the cost of postage if sent alone, is almost as much as the panel itself. The 48 in. × 10 in. panel is too large for post and is sent carriage forward.

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	30 in. × 24 in. (5 sq. ft.)	... "	3/3
	30 in. × 12 in. ($2\frac{1}{2}$ sq. ft.)	... "	1/8

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	30 in. × 24 in. (5 sq. ft.)	... "	3/2
	30 in. × 12 in. ($2\frac{1}{2}$ sq. ft.)	... "	1/7

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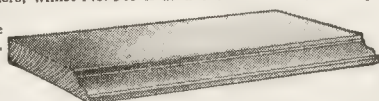
POSTAGE 30 in. × 12 in. panels—1 for 6d.; 2 for 8d.; 7 for 1/-. Larger panels carriage forward.

MOULDING for the woodworker

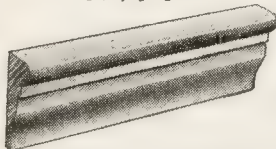
These are just the mouldings which the amateur carpenter needs. The base moulding and corner moulding are used in building up gramophone and wireless speakers and cabinets. The angle moulding No. 300, etc. is to cover bad corners, whilst No. 303 is as a cover moulding or drop ornament under an overhang. All are well cut, but quite cheap in price and suitable for any class of work.



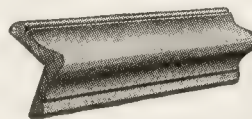
BASE MOULDING. .2ins. wide, $\frac{3}{8}$ in. thick No. 41.
OAK, 3 $\frac{1}{2}$ d. per foot. HAZEL PINE, 3d. per foot.



BASE MOULDING. .1 $\frac{1}{2}$ ins. wide, $\frac{1}{4}$ in. thick No. 42
HAZEL PINE. Price 2d. per foot.



MOULDING No. 303 Hazel Pine
 $\frac{3}{4}$ in. . . . 2d. per ft. 1/6 per doz.
1 in. . . . 2 $\frac{1}{2}$ d. " " 2/6 " "
1 $\frac{1}{2}$ in. . . . 3 $\frac{1}{2}$ d. " " 3/6 " "
Postage Extra



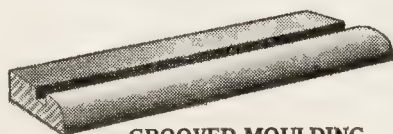
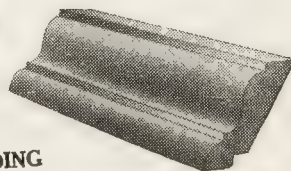
No. 300. — $\frac{1}{4}$ in.
Sides. Price 4d.
ft. 3/6 doz. ft.

No. 301 — $\frac{1}{2}$ in.
Sides. Price 3d.
ft. 2/6 doz. ft.

No. 302. — $\frac{1}{2}$ in.
Sides. Price 2d.
ft. 1/9 doz. ft.

CORNICE MOULDING

2ins. wide, $\frac{1}{2}$ in. thick. No. 43
HAZEL PINE. Price 3d. per ft.



GROOVED MOULDING

For cut-out calendars and statuettes. In lightwood with $\frac{1}{2}$ ins. or $\frac{3}{4}$ ins. groove.
1 $\frac{1}{2}$ d. per ft. 1/3 for 12ft.



No. 230.—2d.



No. 231.—2d.



No. 229.—2 $\frac{1}{2}$ d.



No. 228.—2d.

Give Reference Number when you order and include return postage.

All these rosettes are in beech and measure 1 $\frac{1}{2}$ in square. Suitable for ornaments on any work.

Obtainable from Hobbies branches or agents everywhere. Or by post from Hobbies Ltd. Dereham, Norfolk

Amateur chemists should know about ALKALIES AND SALTS

THE term "alkali" was originally employed by the Arabian alchemists to designate the soluble portions of the ashes of plants. Nowadays the name is applied only to a few substances of specific properties.

Because of the difference in their characteristics alkalies are divided into two classes, namely, caustic alkalies and mild alkalies. Caustic alkalies are compounds of a metal or ammonia with hydrogen and oxygen.

Some Hydroxides

These compounds are known as hydroxides and, using the symbols given in a previous article, may be represented by the following formulæ.

Sodium hydroxide (caustic soda) NaOH .

Potassium hydroxide (caustic potash) KOH

Ammonium hydroxide (ammonia solution)
 NH_4OH .

Calcium hydroxide (slaked lime) Ca(OH)_2 .

There are, of course, other caustic alkalies but the above are sufficiently representative of their class.

Mild alkalies are compounds of ammonia or a metal with carbon and oxygen. These are known as carbonates and the formulæ of a few typical examples are given below.

Sodium carbonate (washing soda) Na_2CO_3 .

Potassium carbonate (potash) K_2CO_3 .

Ammonium carbonate (sal volatile) NH_4CO_3 .

Let us undertake a few experiments on this subject. Here is one. Place a small quantity of caustic soda in a test tube and just cover it with distilled water. The solid will dissolve slowly with evolution of heat. When dissolved dilute the solution to ten times its volume and rub a few drops between the

fingers. Notice the soapy feel, which is characteristic of caustic alkali solutions.

Experiment Number 2 is add to some litmus solution which has been reddened with a few drops of hydrochloric acid, to a little of the caustic soda solution. The litmus will immediately turn blue.

Another experiment is to a test tube half full of the soda solution add a few drops of olive oil. Boil the contents of the tube for a few minutes and then allow to cool. On shaking the solution a lather will be produced, showing that soap is present.

Caustic potash and ammonia solutions greatly resemble caustic soda solutions except that ammonia possesses a well known characteristic odour.

Experiments with Mild Alkalies

The mild alkalies. This experiment should also prove interesting. Heat in a dry test tube a little washing soda. Heat in a dry test tube a little washing soda. A great deal of water of crystallization will be evolved and a white powder, known as anhydrous sodium carbonate will be left in the test tube. When the tube is quite cold, add a drop or two of water to the residue, this is absorbed with evolution of heat.

Here is another experiment you can easily undertake. Try the effect of solutions of washing soda and anhydrous sodium carbonate on red litmus solution. In each case the litmus solution will turn blue.

Add a little dilute hydrochloric acid to some washing soda in a test tube. The soda dissolves, giving off a colourless gas, which will extinguish a lighted taper. This gas is known as carbon dioxide.

To Prepare Calcium Hydroxide

This experiment is to prepare calcium hydroxide.

To a few pieces of quicklime in a basin, add enough water to moisten the substance. The lime will become very hot, crumbling away to a fine white powder if too much water has not been added. Put a little of the powder into a bottle of water and after shaking well, allow to stand overnight.

Then pour off the clear liquid into another bottle and label it **LIME WATER**. This solution will be used in later experiments.

If you wish to prepare caustic soda, dissolve two teaspoonfuls of washing soda in a quarter of a pint of water and prepare a slurry or thin paste with the same quantities of lime and lime water. Mix the two liquids and boil for about half an hour.

Then allow the mixture to cool and settle for an hour or two. Pour off the

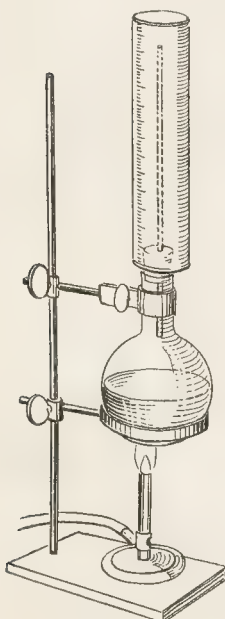


Fig. 1—Preparing ammonia gas

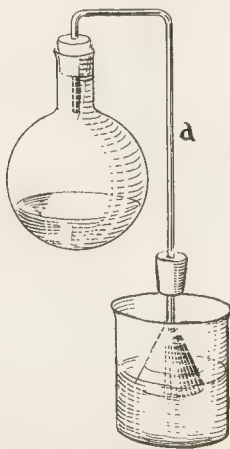


Fig. 2—Ammonia solution

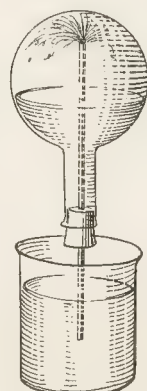


Fig. 3—A miniature fountain

clear liquid from the white powder in the bottom of the vessel. This is a solution of caustic soda, the mixture of calcium hydroxide and sodium carbonate having changed into a mixture of calcium carbonate and sodium hydroxide.

Pour the solution of caustic soda into an iron dish and evaporate to dryness.

The solid will be caustic soda, and the first three experiments may be repeated with it. If this experiment is repeated with potassium carbonate instead of sodium carbonate, caustic potash will be formed.

To prepare ammonia gas, make a mixture of equal parts of ammonium chloride (sal ammoniac) and calcium oxide (quicklime). Put the mixture in a small flask fitted with a cork through which passes a piece of glass tubing as in Fig. 1.

On gently heating the flask, ammonia will be evolved and, as it is lighter than air may be collected by inverting a dry jar over the glass tube. This method of collecting a gas is known as the "upward displacement of air" method. If you wish to make a solution of the gas, replace

the straight glass tube by one bent to the shape in Fig. 2a.

Connect a funnel to the end of the tube by means of a piece of rubber tubing. Allow the funnel to *just* dip into a beaker of water so that the liquid may not be drawn back into the tube. Now heat the flask gently. The ammonia generated will pass over and go into solution.

For this experiment invert a jar of the gas in a bowl of water. The liquid will rise with great rapidity and practically fill the jar. The extreme solubility of the gas may be demonstrated more strikingly in the following manner. Fit a large flask with a cork and glass jet as shown in Fig. 3.

Remove the cork and fill the vessel with ammonia by upward displacement of air. Now replace the cork and invert the protruding end of the glass jet over a jar of water coloured with red litmus solution.

The gas will dissolve so rapidly that a partial vacuum will be formed. This will cause the liquid to rush into the flask with such force that a fine miniature fountain, which changes from red to blue as it plays, will be formed.

"Plough your way" into this YACHTING CROSSWORD PUZZLE!

AVAST there, you lubbers! Up anchor and get "ahead" with this Yachting crossword! Being a keen enthusiast, it should interest you. Answers should be familiar to everybody, as a matter of fact, and may we once again remind readers that this puzzle is for amusement only.

There are no alternatives or prizes, of course. A fellow who can solve the square in fifteen minutes, can pat himself on the back, for the stipulated time is 30 minutes. Look out for the correct solution next week.

CLUES DOWN

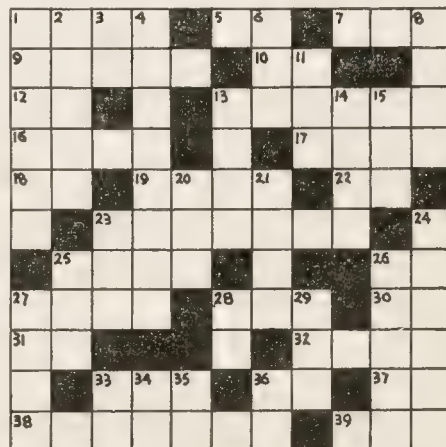
1. Care and attention prevents your model looking this.
2. Eyed, boom jib ones are required for the sail cords.
3. "Elk" curtailed.
4. This water line is seen on all ships.
6. The call of a dove.
8. To be of opinion that Hobbies yachts are excellent ones.
11. There is this in sailing a yacht.
13. The stern end.
14. Slang for a pound note.
15. A vase-shaped vessel with a tap for keeping tea, water, etc. hot.
20. To take everything.
21. A small one is ideal for model yachting enthusiasts.
23. This insect produces wax and honey.
24. Most model yachts are fitted with these selectors.
25. To move forward, the sails must be this in a certain way.
26. These tiny, double-eyed articles are needed on good models.
27. To be interested in model yachting.
28. Stationary Office (abbr.)

29. The residuum left after the burning of anything combustible.
33. At the ends of "jar."
34. Often a big word.
35. An exclamation intended to surprise or frighten.
36. Means "all correct."

CLUES ACROSS

1. Model yacht makers need one for the main mast.
5. Yacht Club (abbr.)
7. The fore part of a yacht.
9. Those of a yacht are always slender and shapely.
10. In the centre of "boat."
12. Able-bodied seaman.
13. A twist in the sails catching the wind on the lee-side.
16. The width of a yacht or boat.
17. To revolve round.
18. Balance Sheet (abbr.)
19. It's often hard to get a model to do this properly.
22. Short for "inch."
23. A small post for securing sail cords.
25. It isn't every enthusiast who wants to do this with his model.
26. Short for "company."
27. This is usually made heavy with lead.

28. Often too choppy for model yachts.
30. "Lug" curtailed.
31. "Let" beheaded.
32. A pole used as a yard, boom, shears, etc.
33. The foremost sail.
36. An ejaculation of surprise.
37. West-south (abbr.)
38. These yachts are made by Hobbies, Ltd.
39. A bamboo pole is made much this of.



Solution Next Week.

Another Crossword the week after

Another interesting instalment in our FRETWORK NOTES

IN the last lot of notes we had—in the issue of July 30th—we mentioned the question of using the fretsaw to cut out notices, wording, etc., and this is apparently a point which is of much interest and yet is not always utilised as much as it might and should be by owners of fretsaws.

There are, as mentioned then, so many occasions when it is possible to work up quite a good little sideline of profit by cutting out and making notices for wording for particular people or shops in your own district.

We showed in that issue how letters could be cut either complete, surmounted or cut actually into the wood concerned.

Display Wording

You have probably seen the cut-out wording in some shop windows where there is a light behind which shows through red or other coloured transparent paper with a lantern effect.

This, surely, provides an opportunity of practical use with the fretsaw and the individual can work out occasions and opportunities to suit his own needs. The best way is to cut one out as a specimen then to show it to any shopkeeper you think likely to be interested.

The wood itself can be left in its natural state, or can be nicely stained or even painted or enamelled.

How to Sell Work

In any case, the whole thing must be suitably and nicely finished off so it may not look "amateurish" and rob you of the likelihood of selling. When you have them to offer, be ready with the price when you are asked.

Do not say "Oh, it might be about 2/6 or 3/-." This is too vague to make a definite sale. If

DEFGHI
ABCDEF
DEFGMI

Fig. 1—Letters as printed on Design No. 724



Fig. 2—Cut-out letters in grooved moulding

possible, have a smaller one at, say, 1/-, then a more elaborate one at 2/-.

The price actually, of course, depends on the quality of wood, the number of letters which have to be cut, and so on.

There are, by the way, two designs published by Hobbies especially interesting in this connection. Both of them provide full size letters printed for you to draw off on to the wood, or to trace wherever required.

On Design No. 724 you have the complete alphabet and numbers in four different styles of lettering. Two of them are $\frac{3}{4}$ in. high and the other two $\frac{1}{2}$ in. high. The styles are striking and attractive as shown by the portion reproduced here (Fig. 1) and it should be a simple matter if you want to double or treble their size as required.

On the other hand there is a design No. 2152

More Letter Suggestions.

Care in Cutting Links.

Good and Bad Workers.

which has a complete alphabet of plain letters which are $2\frac{1}{2}$ ins. high. These are definitely more useful for display work, and the design can be used for applying the letters as overlays or cutting them out of the background.

Toy Alphabet for Kiddies

This design sheet, by the way, is really published for a set of alphabet blocks for kiddies, and this is another suggestion which may appeal as a sideline to the fretworker.

By cutting out, say, four of each letter and putting them into the special box illustrated on the sheet, you have a nice little toy to offer for sale, because every kiddy loves to build up words as soon as he knows his alphabet.

The use of grooved moulding also comes into this suggestion, because the actual letters can be made displayed in a stand. The Hobbies moulding No. 48 is as you probably know, supplied already cut with the groove.

It is thus ready to accommodate lettering to be stood up into it. The groove is only about $\frac{1}{4}$ in. deep, and any letters cut must have a little projection along their bottom edge to fit in much as does a tenon joint. This moulding is cut the length of each word, and used as a base to hold it. An example is shown in the illustration herewith (Fig. 2).

Designs and Wood

The cost of these two designs is 4d. each as usual, from any branch, or 4 $\frac{1}{2}$ d. if sent by post. Always use good quality plywood in cutting out these little letters, because cheap inferior stuff is apt to fall to pieces.

The plys have a nasty habit of falling apart, particularly as they are used very often in extremes of heat or cold.

So much for the use of letters and lettering for Notices and wording. Now let us turn to another point which we find is not always given the consideration it should.

Linking Pieces

That is the question of the links between parts of a design. There are several forms of these, and they are shown in the illustration herewith at Fig. 3. Each of these serves its own particular purpose, and must be treated according to its outline.

Each in turn is used in a different style of design, and each requires a certain care in getting the

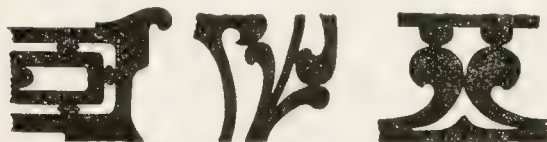


Fig. 3—The three general types of connecting links

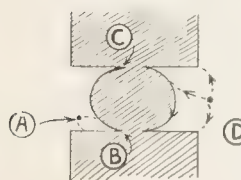


Fig. 4—The best method of cutting

correct shape. Moreover, there is always the question of a most suitable position for making drill holes in interior frets.

The correct position will save a good deal of cutting, because if it is near where you have to turn, you can run the saw backwards,

then turn it round in the hole without further trouble. A glance at Fig. 4 will show the difference.

If you put the drill hole as shown at A, the sawcuts can very well go down to the point marked B, but when they get linked to the angle at C, they must either come all the way back or else turn round. As the angle at C, however, is quite acute, this turning round is most awkward and liable to spoil the whole shape.

A very much better position for the drill hole is that shown at D, because in this instance you can pass down to the sawcuts by the lines marked

with the arrows coming back each time to the central drill hole to turn the sawblade.

These linking pieces must be cut in the same style all the way through, and in addition to following the actual cutting line of the pattern, you must watch out to see that it balances with any similar ones.



Fig. 5—Two examples of good and bad cutting

There are so many ways of doing these links wrong, that one must get into the way of doing it always in the same method—the correct one. The sawcut should follow to the same point each time. If the linking pieces are the little round balls or globules, then see they are the same shape in each piece.

Good and Bad

If, on the other hand, they are two curves, just held together by a narrow neck of wood, then get the parts so that the spacing holding the two pieces is the same in each instance.

Look at the detail at Fig. 5, and you can see the difference where two simple specimens of work are given of these links. One is done as it should be, and the study of the second piece shows how badly the design can be spoiled merely by not watching out this little point.

The August Hobbies PHOTOGRAPHIC COMPETITION A Holiday Scene

Everyone who has a camera, stands a chance to win a cash prize in our Monthly Competitions. Two sections—Open and Junior. The available subjects under the above heading are widespread and give everyone a chance to enter at least one print. There is no entrance fee, but good prizes are offered.

Closing Date : August 31st

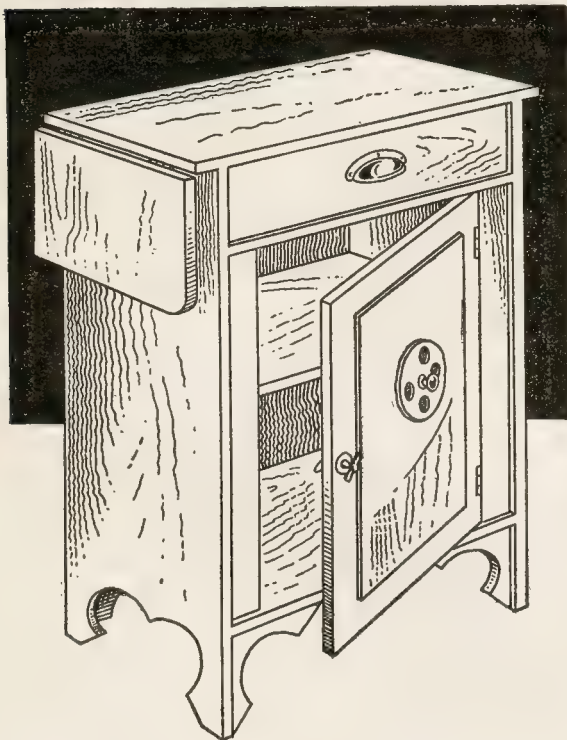
RULES AND PRIZES

In the Open Section a 1st Prize of a Guinea Swan Fountain Pen and a 2nd Prize of 10/- . In the Junior Section (those under 16) the 1st Prize is a Fountain Pen value 10/- and the 2nd Prize 7/6. Each print must bear the competitor's full name and address, and his age, if under 16 years. Entries should be addressed : Amateur Photographic Competition,

Hobbies Weekly, Dereham, Norfolk, and must arrive not later than August 31st. The Editor reserves the right to publish any entries he wishes in Hobbies Weekly. No competitor to take more than one prize during the season. If a stamped addressed envelope is sent with the entries every endeavour will be made to return them, except the prize-winning ones.

Modernize your kitchen with this

COMPACT TABLE AND CUPBOARD



HERE is a tidy and useful food cupboard designed to fit that odd recess in the kitchen or scullery. Test for it right now—the over-all dimensions are:—height 30½ ins., width 21 ins. (or 21½ ins. if you fit the hinged table flap) and depth 10½ ins.

It will be seen that it isn't an elaborate affair. It is made on the cheapest and easiest lines—just a simple job within the capacity of the youngest woodworker. The drawer and door offers little difficulty, the former being a handy addition as regards cutlery or tinned foodstuffs.

The cupboard has a roomy shelf and base on which bread, milk bottles, etc., can be kept, then the door is fitted with a home-made ventilator which, being adjustable, will prevent stuffiness and help hygienically.

Setting to Work

It is always a problem to some youthful enthusiasts to know how to begin, and without any hard feelings, they do frequently remind one of the ancient builder who, believe it or not, suspended a chimney in mid-air and built his house up to it! Must have been an awful ass, that man, don't you think? It is, of course, just a playful way of saying that the rawest novice would start by making the door or drawer.

These, like the old boy's chimney, are obviously the last thing to attend to, so begin by making the carcass. The first parts to be prepared are the gables. For cheapness and simplicity, they are—

like most of the parts—cut from deal boards planed to 10½ ins. wide by ½ in. thick.

Having cut them to length with a panel saw, trim the ends square with a plane, then mark and cut out (with a keyhole saw) the shape as suggested in the illustration.

By cutting out the front leg bracket pieces detailed at Fig. 1, you could use one of them as a template in obtaining the shape desired.

Method of Assembly

The 30 in. long gable pieces are nailed with 1½ in. flat nails to two 18 in. long cross pieces, keeping them in from the top and bottom ends of the gables 4 ins. and 5 ins. as in the elevation.

It is advisable to rule their position across the gables with pencil and set-square. The nails should be driven in slightly dove-tail fashion, then punched and filled in with putty or plastic wood.

The 21 in. top piece is added, this projecting one inch at each side. Square the ½ in. plywood back to 30½ ins. long by 19 ins. wide, this being the over-all size of the work.

Attach with panel pins, then trim the edges evenly with the carcass and keyhole saw a leg shape something similar to the front at the bottom. Alder plywood is cheap and ideal for backing.

Side pieces (20 ins. by 1½ ins.) are nailed against the gables inside to show a ½ in. break. The leg brackets are affixed similar; they are best nailed from the "arch" of the shape, the nail holes being made gently with a bradawl to prevent splitting.

About two nails each bracket would suffice to keep them in place providing you use glue.

COMPLETE MATERIALS LIST

Carcass.

All sizes are nett.

- 2 gables—30 ins. by 10½ ins. by ½ in. thick.
- 2 cross pieces—18 ins. by 10½ ins. by ½ in. thick.
- 1 top piece—30 ins. by 10½ ins. by ½ in. thick.
- 2 side pieces—20 ins. by 1½ ins. by ½ in. thick.
- 1 shelf piece—18 ins. by 9½ ins. by ½ in. thick.
- 2 shelf pieces—9½ ins. by 1 in. by ½ in. thick.
- 1 foot piece—5 ins. by 5 ins. by ½ in. thick.
- 1 plywood back—30½ ins. by 19 ins. by ½ in. thick.

Drawer.

- 1 front—18 ins. by 4 ins. by ½ in. thick.
- 2 sides—10 ins. by 4 ins. by ½ in. thick.
- 1 back piece—17½ ins. by 4 ins. by ½ in. thick.
- 1 plywood bottom—17½ ins. by 10 ins. by ½ in. thick.
- 6 pieces stripwood—18 ins. by ½ in. by ½ in. thick.
- 1 grip (No. 5491)—4 ins. long.

Door.

- 2 stiles—20 ins. by 2 ins. by ½ in. thick.
- 2 end pieces—18 ins. by 2 ins. by ½ in. thick.
- 1 plywood panel—17 ins. by 12 ins. by ½ in. thick.
- 2 brass (stout) hinges—1½ ins. long.
- 1 cupboard turn (No. 5490).
- 1 turned knob (No. 16).

To make the drawer, first fit the front neatly into the aperture. The ends are then rebated to accept the sides, a narrower back piece being nailed between same.

Another, and simpler, method is to nail the drawer front down over the ends of the sides, then cover with a thin panel of plywood to hide the nail heads.

All four drawer pieces should be flush with the bottom. The inside bottom edges are lined with length of $\frac{1}{4}$ in. by $\frac{1}{4}$ in. stripwood. Fit the plywood bottom on top and cover with more strips, either $\frac{1}{4}$ in. square or quarter-round.

The Door

To make the door, cut the stiles and cross pieces to the exact length permitted by the door space.

One easy way to join the ends is by half-lapping (see Fig. 3).

To do so, set the marking gauge to $\frac{1}{4}$ in. and score the lines up and over the ends, then down the other edge. As the halved section will be 2 ins. square, mark this with pencil and set-square.

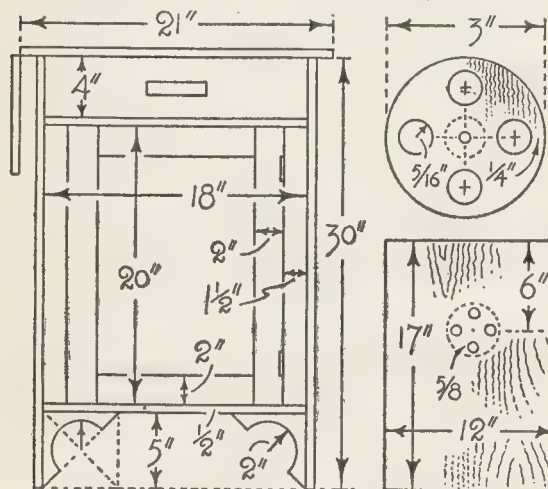


Fig. 1—Front elevation and dimensions

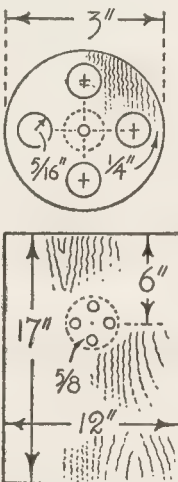


Fig. 4—The ventilator and door panel

A tenon saw is used in cutting down to the shoulder marks, the wood being cramped in a vice, of course. If you do not possess a vice, cut across the shoulder line with tenon saw to $\frac{1}{4}$ in. deep and simply remove the waste portion by splitting with a table knife and mallet.

Deal usually splits straight and even, but in any case, the lapping should be trimmed up to the gauge lines with a sharp chisel.

A Lap Joint

If you do not fancy this form of joining, the next best is mitring the ends and fixing together with glue and nails. With the half-lapping, glue and $\frac{3}{8}$ in. flathead iron screws are used. Sink them in

at the interior side and fill in, then clean the face side with a smoothing plane and glass-paper.

Before gluing and nailing the door panel over the frame as seen at Fig. 3, cut out (from $\frac{1}{2}$ in. plywood) the ventilator disc detailed at Fig. 2. Drill a hole in its centre to suit the stub of a wooden knob (No. 16). Glue this to the disc and glass-paper the reverse side. Find the centre of the stub and mark with a bradawl for the $\frac{1}{2}$ in. by 4 roundhead screw pivot.

Having screwed the disc temporarily to the panel at the distance indicated, pencil in and around the

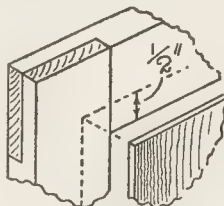


Fig. 3—Detail of assembly

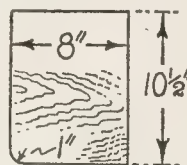


Fig. 4—Size of table flap

holes, then remove the disc and cut or drill them in the panel.

When attaching the disc again, insert a small metal washer over the screw. In order that the screw will turn in the panel only, put a blob of tube glue within the knob hole.

Before going further, screw two shelf fillets (see list) to the inside of the gables at about 7 1/2 ins. from the drawer cross piece. Owing to the side pieces, you may have to unscrew the fillets to get the shelf in.

The Fittings

At this juncture, drill a hole in the left-hand door stile centre for the brass cupboard turn (No. 5490).

In the right-hand stile sink flush two $1\frac{1}{2}$ in. brass hinges zins. from the ends. When the door is screwed in place, adjust the brass turn snib so that it is close against the door stile, yet free to move.

To prevent it turning completely round, drive a roundhead screw into the side piece at the interior side, not the face side, naturally.

A brass handle, such as No. 5491, is screwed to the drawer front. If a table flap is required, it can be any reasonable length, the measurement given at Fig. 4 being usual. Attach it with two $1\frac{1}{2}$ in. hinges. A 6 in. metal bracket hinge is used for holding it up—or you could make one from $\frac{1}{2}$ in. wood and a 4 in. hinge.

Suitable Finish

As a finish, paint or enamel the outside of the work to match surrounding furniture. Remove the ventilator disc to facilitate painting the door panel, and do not, of course, stain or colour the inside of the cupboard in any way.

Don't forget to send in your snaps for The August Photographic Competition now!

When the true vertical is obtained adjust the collar at (z) sheet B, which prevents the rod from lifting, another collar can be fitted at the bottom of the shaft, but this is not absolutely necessary.

Collars, face-plate, and pinion gear wheels of the sizes required for this design, can be obtained for a few pence from any model outfitters.

The Drum

We can now make the truncated drum Fig. 3. If this can be turned on a wood lathe to start with so much the better. The top and bottom diameters are 7ins. and $2\frac{1}{2}$ ins. respectively and when made the end circles are marked out into twelve divisions by lines radiating at 30° from the centre (Fig. 3a).

Flatten between each two lines if desired, and carry the flattened face down to the bottom as shown, or the drum can be left in its round state.

Next fit a $\frac{1}{4}$ in. thick disc (k) to the centre-top of the drum, and make twelve shapes as per the one shaded (also out of $\frac{1}{4}$ in. thick material), and secure these in position with $\frac{1}{16}$ in. sprigs round the top, so that there is a $\frac{1}{4}$ in. wide channel between each. Complete the drum by fitting the larger disc (m) down on the top of the shapes, so making

twelve tunnels of $\frac{1}{4}$ in. by $\frac{1}{4}$ in. section ; into which will slide the arms (p).

Care in Fitting

Some careful fitting will be needed here (before fastening down m) and once a certain arm has been made to fit a certain channel perfectly, it should be numbered, also the channel, so that the same arm will always be put into the same channel, whenever the model is assembled or taken apart.

The arms (twelve in number) are from $\frac{1}{4}$ in. strip wood, $4\frac{1}{2}$ ins. long, with two tin angles (t) secured at one end by drilling two holes very carefully through the tin and the wood, then putting through two short lengths of soft wire and gently riveting.

Two small hooks q and q' are fitted as shown ; these also being obtainable at firms supplying accessories to the model maker, or they can be made from light wire carried through the arm (by careful drilling) and bent over at the top.

The central hole which runs up the middle of the drum is continued through (m) on top of which is secured a Meccano, or other model-maker's $1\frac{1}{2}$ in. diameter face plate (s) by small screws.

The whole fits in the central shaft and rests on a washer on the top of the block (h).

The Top Circle

Now make the top piece, Fig. 5. This is a circle of tin with diameter as shown fastened down to a round block, the shaft going through the wood, but not through the tin.

Twelve holes are carefully punched in the circumference of the disc which take the bent ends of the wires (w). The lower ends of these wires pass through the end of the arms, are bent round as Fig. 6, being left permanently fitted to these members.

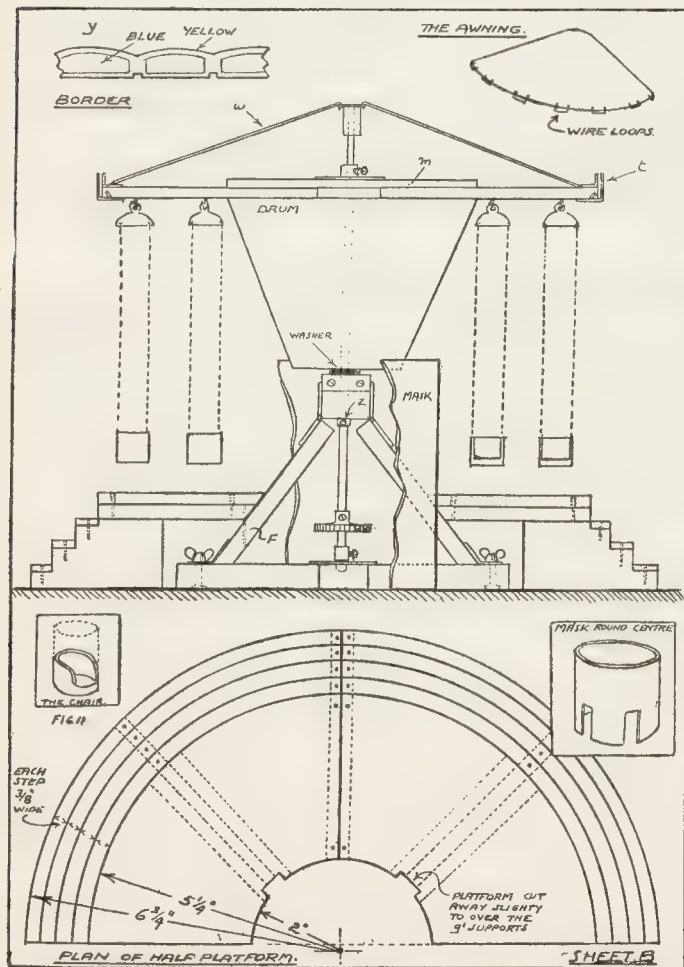
Find the Length

The length of wire (w) is about 6ins., but the exact length is found by experiment as construction proceeds. The wires really take no weight and are to hold the awning which is cut and shaped out of a bright coloured silk, with fine wire loops clipped round the circumference, to slide over the inner of the two tin angles (t). The angles, however are to take the bordering (y).

This is, as shown, in card, light tin or celluloid. Cut in four lengths, this border will go entirely round the circumference of the arms, slipping between the angles (t) where it holds nicely by friction.

Each section of border is a little less than $4\frac{1}{4}$ ins. in length, but it is best to make the whole border in one piece than divide it into four.

(To be continued).



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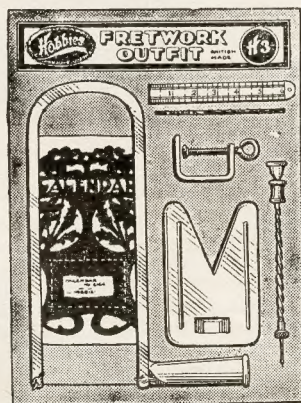
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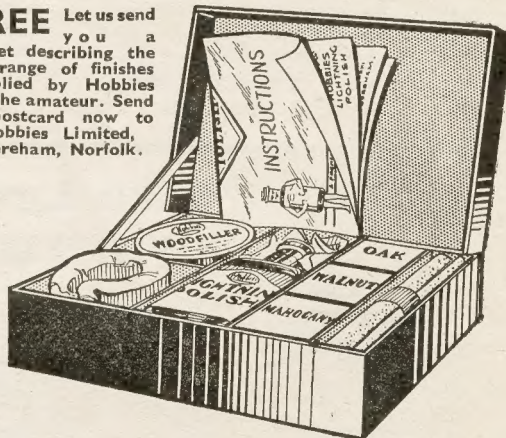
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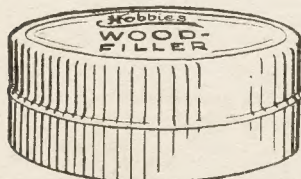


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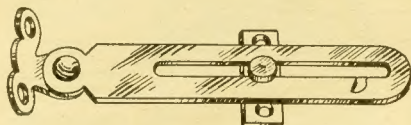
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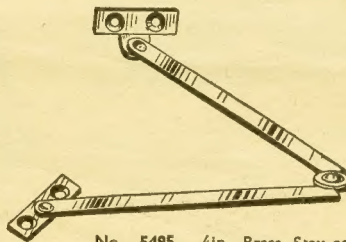
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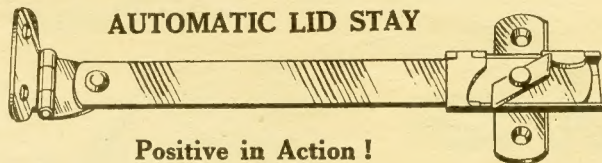


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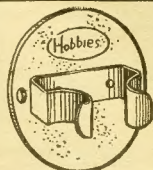
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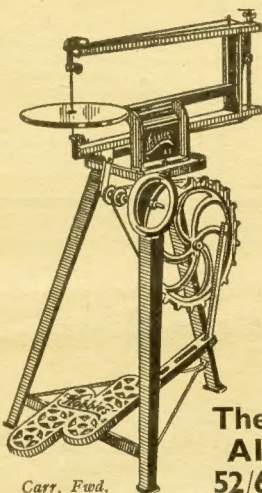


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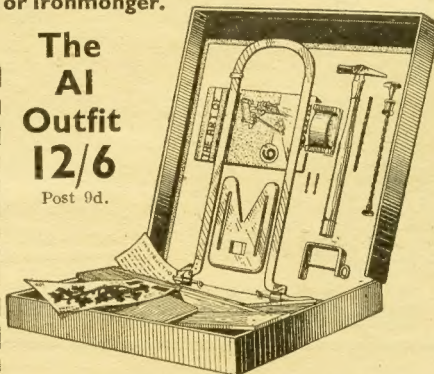
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